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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,312	06/08/2001	Christophe Serbutoviez	PHN 16, 199B	9784

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/877,312	SERBUTOVIEZ ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) *1-4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5 and 7-9* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/013546.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The 35 U.S.C. 103(a) rejections of claims 5, 7-9 are restated below due to Applicant's amendment. No new issues have been presented.

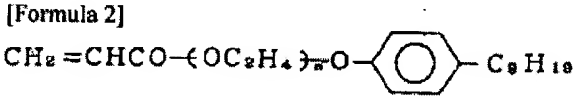
Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 5, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masayuki (JPO website Machine English Translation of JP 05019240), as set forth in the previous Office action dated 06/03/04.

Regarding the newly added limitation of "ethoxyylated acrylate" in claims 5, 9, Masayuki has a liquid crystal display which comprises a polymer-dispersed liquid crystal (PDLC) cell. The cell is manufactured from a mixture (section [0013]), which predominantly comprises a liquid crystalline material (75 % by weight) (section [0015]), a small amount of photoinitiator (photopolymerization initiator)(section [0016]) as well as two types of compounds, an ethoxylated acrylate monomer (nonyl-phenol EO acrylate which structure is shown in Formula 2 below) and an acrylate oligomer (section [0016]).

[Formula 2]



(n=3 ~ 9)

The mixture was heated to 100 degrees C (section [0016]), thus the compounds are non-volatile at room temperature. The radical polymerization of the monomer and the oligomer (section [0013) means that the compounds are reactive.

The mixture is sandwiched between two substrates (enclosed in a cell) and polymerized under the influence of radiation (controlled by optical irradiation intensity)(section [0013]). The substrates (cell) are provided with an electrode layer (section [0016]).

Masayuki teaches that the liquid crystal display device comprises a polymer-dispersed liquid crystal cell with a TFT or MIM element (section [0021]) which means that there is a matrix of individually drivable rows and columns of electrodes which is required for the individual pixels of the display as well as a means for driving these electrodes.

The ethoxylated acrylate monomer is taught to be poorly miscible (weak interaction) with the liquid crystal and mixed (used together) with the acrylate (acrylic ester) oligomer taught to be miscible (of good compatibility) with the liquid crystal (section [0013]). An oligomer is a coupling of several identical monomers and thus qualifies as a homolog of the monomer.

Masayuki teaches that the advantage of the mixture of acrylates, one readily miscible (of good compatibility) and one poorly miscible (weak interaction) with the liquid crystal is that it allows for good control of phase separation structure of the polymer dispersed liquid crystal (PDLC) (section [0013]). Therefore a mixture of an ethoxylated acrylate monomer, which is instead readily miscible with the liquid crystal, coupled with an acrylate monomer, which is instead poorly miscible with the liquid crystal, is the result of routine experimentation by one of ordinary skill in the art at the time the invention was made, within the realm of the invention of

Masayuki, because it follows the same principle of a miscible/immiscible acrylate mixture which results in good control of the phase separation structure of the polymer dispersed liquid crystal.

Regarding claim 7, Masayuki teaches that the quantity of each of the two types of monomers is 50 % calculated with respect to the overall quantity of both types of monomers (12 wt % nonyl phenol EO acrylate and 12 wt % acrylate (acrylic oligomer) (section [0015]), which is within the claimed range of at least 20 %.

Regarding claim 8, the cell is manufactured from a mixture (section [0013]), which predominantly comprises a liquid crystalline material (75 % by weight) (section [0015]), encompassed by the claimed range of 70-90% by weight.

Response to Arguments

4. Applicant's arguments filed 09/02/04 have been fully considered but they are not persuasive.

5. Applicant argues that '240 fails to teach or suggest a first type of monomer being an ethoxylated acrylate and readily miscible with a liquid crystalline material because '240 teaches an ethoxylated acrylate which is poorly miscible with the liquid crystal, and therefore teaches away from an ethoxylated acrylate which is readily miscible with the liquid crystal.

Applicant is respectfully reminded that Masayuki teaches the advantage of the mixture of acrylates, one readily miscible (of good compatibility) and one poorly miscible (weak interaction) with the liquid crystal, which is that it allows for good control of phase separation structure of the polymer dispersed liquid crystal (PDLC) (section [0013]). Therefore a mixture of an ethoxylated acrylate monomer, which is instead readily miscible with the liquid crystal,

coupled with an acrylate monomer, which is instead poorly miscible with the liquid crystal, is the result of routine experimentation by one of ordinary skill in the art at the time the invention was made, within the realm of the invention of Masayuki, because it follows the same principle of a miscible/immiscible acrylate mixture which results in good control of the phase separation structure of the polymer dispersed liquid crystal.

6. In response to Applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In the instant case, the principle of a miscible/immiscible acrylate mixture which results in good control of the phase separation structure of the polymer dispersed liquid crystal (section [0013]) is taught by Masayuki. Therefore using a liquid crystal which is instead readily miscible with the ethoxylated acrylate monomer, and immiscible with the acrylate monomer, is the result of routine experimentation by one of ordinary skill in the art at the time the invention was made, within the realm of the invention of Masayuki.

Allowable Subject Matter

7. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The cited prior art of record, JP 05019240 (JPO website Machine

English Translation), even in combination with US 5,496,497, fails to teach or suggest a polymerizable mixture which can suitably be used in a polymer-dispersed liquid crystal cell, which mixture comprises reactive monomers and a photoinitiator, characterized in that the mixture contains two types of non-volatile reactive monomers, wherein the first type of monomer is an ethoxylated alkyl-phenolacrylate whose alkyl group comprises at least five carbon atoms, and readily miscible with a liquid crystalline material and the second type of monomer is an alkylacrylate whose alkyl group comprises at least 8 and maximally 18 carbon atoms. '497 does not teach that the difference in HLB values between the acrylate monomers need to be significant. See Applicant's arguments with respect to the secondary reference US 5,496,497.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sow-Fun Hon
12/7/04

HAROLD PYON
SUPERVISORY PATENT EXAMINER
12/8/04